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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,376	07/30/2003	Eric J. Bergman	54008.8033.US00 P03-0004	2135

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EXAMINER	
EL ARINI, ZEINAB	

ART UNIT	PAPER NUMBER
1746	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/631,376	BERGMAN, ERIC J.	
	Examiner	Art Unit	
	Zeinab E. EL-Arini	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-2, 7, 9-10, 12--24, 26-36, and 38-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7,9,10,12-24,26-36 and 38-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/27/05 has been entered.

2. The amendment and remarks filed 12/27/05 have been acknowledged and entered.

3. Claims 1-2, 7, 9-10, 12-18, 20-24, 26-36, and 38-41 are pending.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-2, 7, 9-10, 12-18, 20-24, 26-36 and 38-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, as originally filed, does not provide support for "a bare silicon wafer" in claim 1, and "an uncoated surface" as claimed in claim 13.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 15-18, 23, and 33-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 15-18, line 1, "the step" lacks antecedent basis.

In claim 18, line 2, "the etching step" lacks antecedent basis.

In claim 23, "the removing step" lacks antecedent basis.

In claims 33, 34 , line 2, "more than about" is indefinite and confusing term.

8. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte*

Hasche, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim s 33 and 34 recites the broad recitation "more than", and the claim also recites "about" which is the narrower statement of the range/limitation.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-2, 7, 9-19, 12-15, 16, 17, 20-22, 23-24, 26-27, 29-34, 38, and 39 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 7-8, 10-15, 17-18, 20, and 22 of copending Application No. 10/975,194. Although the conflicting claims are not identical, they are not patentably distinct from each other because the process in both application are functionally equivalent.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claims 1, 2, 13, and 29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6, 8, 11-14, 16, and 18-20 of copending Application No. 2005/0236363. Although the conflicting claims are not identical, they are not patentably distinct from each other because the process in both applications is functionally equivalent.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1, 12-13, 15-18, 20, 23, 26-32, and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0782177).

EP'177 discloses a method for etching semiconductor wafer. The reference teaches placing the wafer into a process chamber, the delivering steps, spraying the DI water, dissolving the anhydrous HF gas into the DI water, and the etching and the spinning as claimed. See the abstract, Fig. 1, page 2, lines 21-27, 55-58, page 3, lines 11-page 4, line 24, and the claims.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 2, 7, 9-10, 14, 21-22, 24, 33-34, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'177 in combination with Wong (5,423,944) and Park(5,994,238) new references.

EP' as discussed supra discloses all limitation with the exception of delivering the HF into the process chamber via carrier gas, generating HF by bubbling the carrier gas through HF solution, the mixing step and the etch rate as claimed.

Wong discloses a method for etching a silicon wafer by using hydrogen fluoride and water vapor combined with ozone. The reference discloses the carrier gas, the oxidizing and the delivering steps as claimed. See the abstract, Fig. 1, col. 1, lines 44-66, col. 2, lines 38-65, col. 4, lines 4-11,and claims 1-2, 6, and 12. Forming a film of HF vapor is inherent in the Wong process.

1. Park discloses a method for fabricating semiconductor device. The reference discloses etching the wafer, the HF vapor, and the steps are performed in vapor phase as claimed. See the abstract,, col. 1, line 35- col. 3, line 36. Forming a microscopic aqueous layer on the wafer surface is inherent in the Park reference.

2. It would have been obvious for one skilled in the art to use the carrier gas, the mixing and delivering steps taught by Wong in the EP'177 process to obtain the claimed

process. It would have been obvious for one skilled in the art to use the etch rate taught by Park (see claim 1) in the process taught by EP'177 in combination with Wong to obtain the claimed process. This is because all references are from the same technical endeavor , which is etching or thinning a semiconductor surface.

3. Claims 35-36 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP'177 in combination with Wong and Park as applied to claims 2, 7, 9-10, 14, 21-22, 24, 33-34, and 41 above, and further in view of Schaper et al (US 005/0006738 A1) or Masumoto (US 2004/0214432 A1).

EP'177 in combination with Wong and Park as discussed supra teach all limitation with the exception of reducing the wafer thickness by back –grinding.

Schaper et al. disclose a method of thinning silicon wafer by back-grinding and/ or plasma etching. See paragraphs 24, 35, and claims 1, 9.

Masumoto discloses a method of thinning a semiconductor wafer comprising back-grinding. See paragraph 19-23, 28, and claims 1-9, 16.

It would have been obvious for one skilled in the art to use the back-grinding step taught by Schaper et al. or Masumoto in process taught by the EP'177 in combination with Wong and park to obtain the claimed process. This is because all references are from the same technical endeavor, which is a method of etching or thinning a semiconductor wafer. Back-grinding, followed by HF/ozone may be used to create clean surface.

The rejections under 35 U.S.C. 102(e) and under U.S.C. 103(a) as being unpatentable over Torek et al. in combination with DeGendt et al. or EP'177 have been withdrawn in view of applicant's amendment, but would be reapplied if the new matter has been deleted.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeinab E. EL-Arini whose telephone number is (571) 272-1301. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zeinab Elarini

Zeinab E. EL-Arini
Primary Examiner
Art Unit 1746

ZEE
01/09/06